

Cross-scale Observational Signatures of Magnetic Reconnection

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Magnetic reconnection is a significant mechanism for energy release across many astrophysical applications. In the solar atmosphere, reconnection is considered a primary contributor of flare evolution and coronal heating. Directly observing reconnection occurring in the solar atmosphere, however, is not trivial considering that the scale size of the diffusion region is magnitudes smaller than the observational capabilities of current instrumentation, and coronal magnetic field measurements are not currently sufficient to capture the process. Meanwhile, reconnection occurring in the Earth's magnetosphere transfers energy from the solar wind through a comparable process, although on vastly different scales. Magnetospheric measurements are made in situ rather than remotely; ergo, comparison of observations between the two regimes allows for potentially significant insight into reconnection as a stochastic and possibly turbulent process. We will present a set of observations from long-duration solar events and compare them to in situ measurements from the magnetosphere.